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PATENT STATUS REPORT FOR
BLACK VALLEY LIMITED
(f/k/a ZEN RESEARCH (IRELAND) LTD)

December 10, 2004

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December 10, 2004

DOCUMENT NUMBER	SUBJECT MATTER	SERIAL NO.	PUBLISHING DATE	PATENT NO. & DATE	STATUS
2185/US/92 DIV I	Edge detection algorithm for determining track centers in wide-area image	08/394,309	02/24/1995	5,598,393 (01/28/1997)	Maintenance Fee Due 1/28/05 + surcharge; 7/28/2008. Expires 01/28/2014.
2185/US/92 DIV II	TDI detector matrix-wide area	08/394,175	02/24/1995	5,574,712 (11/12/1996)	Maintenance Fee Due 05/12/2008. Expires 11/12/2013.

DOCUMENT NUMBER	SUBJECT MATTER	SERIAL NO.	PUBLISHING DATE	PATENT NO. & DATE	STATUS
2637/US/93	Parallel write using interference from independently modulated neighboring beams	08/254,187	06/06/1994	5,592,444 (01/07/1997)	Maintenance Fee Due 01/07/2005 + surcharge; 07/07/2008. Expires 01/07/2014.

DOCUMENT NUMBER	SUBJECT MATTER	SERIAL NO.	PUBLISHING DATE	PATENT NO. & DATE	STATUS
2871/US/93	LED illumination with TDI matrix-wide area	08/315,432	09/30/1994	5,566,159 (10/15/1996)	Maintenance Fee Due 04/15/2008. Expires: 10/15/2013.

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DOC#	INVENTION	PATENT NUMBER	PATENT DATE	STATUS
ZRI-002	Astigmatic focus detection for wide-area illumination	08/531,764	09/20/1995	5,708,634 (01/13/1998) Maintenance Fee due 07/13/2005; 07/13/2009. Expires: 09/20/2015.
ZRI-002 PCT (Designating all States)		PCT/EP96/04110	09/19/1996	WO 97/11460 (03/27/1997) International phase complete; No National/Regional Applications
ZRI-002 DIV	Focus detection for wide-area illumination using two micro-lenses	08/842,936	04/25/1997	5,744,432 (06/30/1998) Maintenance Fee due 12/20/2005; 12/30/2009; Expires 09/20/2015.
DOC#	INVENTION	PATENT NUMBER	PATENT DATE	STATUS
ZRI-003	Method and Apparatus for tracking a target using a multi-beam array	PCT/EP96/04947	11/13/1996	WO 97/18360 (05/22/1997) International Phase Completed; No National/Regional Applications
ZRI-003 PCT (Designating all States)				
ZRI-003 FWC	Tracking detection using CCD array having a low integration rate and a serial shifted output (wide area-method claims may support multi-beam)	08/921,459	08/15/1997	5,802,025 (09/01/1998) Maintenance fee due 03/01/2006; 03/01/2010; Expires 11/15/2015.

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INVENTION NUMBER		INVENTOR	APPLICATION NUMBER	PATENT NUMBER	PATENT DATE	STATUS
ZRI-004	Electronics for buffering data from multiple tracks in parallel and reassembling data in serial (wide area and multi-beam)	08/559,429	11/15/1995		5,627,805 (05/06/1997)	Maintenance Fee Due: 11/6/2008. Expires 11/15/2015.
ZRI-004 PCT		PCT/EP96/04970	11/13/1996	WO 97/18561 (05/22/1997)		International Phase Completed; No National/Regional Applications
ZRI-004 CIP 1	Digital PLL – uses pulse having unique pulse width (wide-area and multi-beam)	08/801,397	02/20/1997		5,793,549 (08/11/1998)	Maintenance Fee Due: 02/11/2006; 02/11/2010; Expires 11/15/2015.
ZRI-004 CIP DIV	Digital PLL – deriving individual track clocks from reference data clock (wide-area and multi-beam)	09/013,861	01/27/1998		6,028,827 (02/22/00)	Maintenance Fee Due: 08/22/07; 08/22/11 Expires 11/15/2015.
ZRI-004 CIP 2 PCT		PCT/EP98/00983	02/20/1998	WO98/37554 (08/27/98)		National/Regional Phase Entered:
Japan		10-536267	02/20/1998			Request for exam due 02/20/05.
ZRI-004 CIP 3	Moveable MUX – concurrent signal processing circuitry and	09/013,864	01/27/1998		6,381,210 (4/30/02)	Maintenance fees due 10/30/05; 10/30/09; 10/30/13; expires 2/20/17

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INVENTION SUBJECT MATTER	DESCRIPTION OF THE SUBJECT MATTER	PATENT NUMBER	PATENT DATE	STATUS
asynchronous signal processing circuitry (multi-beam)				

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ZRI-004 CIP 3 PCT	Foreign counterpart to '864 application	PCT/EP98/00984	02/20/1998	Int'l Phase Completed; National/Regional Phase Entered
Japan		10-536268	02/20/1998	Request for exam 02/20/05

INVENTION SUBJECT MATTER	DESCRIPTION OF THE SUBJECT MATTER	PATENT NUMBER	PATENT DATE	STATUS
ZRI-005	Tracking and reading data from multiple tracks by continuously solving simultaneous equations (wide-area)	08/558,805	11/15/1996	5,652,746 (07/29/1997)
ZRI-005 PCT (Designating all States)		PCT/EP96/04971	11/13/1996	WO 97/18558 (05/22/1997)

INVENTION SUBJECT MATTER	DESCRIPTION OF THE SUBJECT MATTER	PATENT NUMBER	PATENT DATE	STATUS
				International Phase Completed; No National/Regional Applications

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DOC#	SEARCH NUMBER	SEARCH DATE	PUBLICATION DATE	MATERIALS	STATUS
ZRI-006	Improved seek-time using an elongated detector having multiple sensing elements to detect and count tracks (wide-area)	08/558,835	11/15/1995	5,793,715 (08/11/1998)	Maintenance Fee Due 02/11/2006; 02/11/2010; Expires 11/15/2015.
ZRI-006 PCT (Designating all States)		PCT/EPP96/04972	11/13/1996	WO 97/18557 (05/22/1997)	International Phase Completed; No National/Regional Applications
ZRI-007	Signals from detector array used for tracking and crosstalk correction; between-track nulling (wide area)	08/559,419	11/15/1995	5,701,283 (12/23/1997)	Maintenance Fee due 06/23/2005; 06/23/2009. Expires: 11/15/2015.
ZRI-007 PCT (Designating all States)		PCT/EPP96/04973	11/13/2006	WO 97/18559 (05/22/2007)	International Phase Completed; No National/Regional Applications

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DOC. NO.	SUBJECT MATTER	SERIAL NO.	PUBLISHING DATE	PATENT & TRADEMARKS	STATUS
ZRI-008	Magnification correction for multi-beam read (multi-beam)	08/675,526	07/3/1996	5,729,512 (03/17/1998)	Maintenance Fees due 09/17/05; 09/17/09; Expires 07/03/16.
ZRI-008 PCT (designating all states)		PCT/EP97/03497	07/03/1997		Int'l Phase Completed; No National/Regional Applications
ZRI-008 CIP CPA	Magnification correction for multi-beam reading or writing (multi-beam)	09/037,471	03/10/1998	6,430,125 (8/6/02)	Maintenance Fees due 02/06/06; 02/06/10; 02/06/14; Expires 07/03/16
ZRI-008 CIP2	Magnification correction plus single-sided crosstalk correction (multi-beam)	09/042,185	03/12/1998	5,959,953 (09/28/99)	Maintenance Fees due 03/28/07; 03/28/11; Expires: 07/03/16.
ZRI-008 CIP PCT	Foreign counterpart to '471 application	PCT/EP99/01522	03/09/99	WO 99/46769 (09/16/99)	Int'l phase completed; National phase entered.
ZRI-009	Non-coherent wide-area illumination	08/676,554	07/08/1996	5,825,743 (10/20/1998)	Maintenance Fee due 04/20/2006; 04/20/2010; expires 2/24/15
ZRI-009 PCT (Designating all		PCT/EP97/03606	07/08/1997		International Phase Complete; No National/Regional

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SEARCHED		SEARCHED		SEARCHED	
INDEXED		INDEXED		INDEXED	
SERIALIZED		SERIALIZED		SERIALIZED	
FILED		FILED		FILED	
SEARCHED	SERIALIZED	INDEXED	FILED	PATENT NO.	STATUS
States)					Applications

DOC ID	INVENTION NAME	SERIAL NO.	DATE	PATENT NO.	STATUS
ZRI-019	Multibeam optical pickup that combines diffractive and holographic elements (multi-beam)	09/027,313	02/20/1998	20020057632-A1	6,411,573 (06/25/02)
ZRI-022	Multi-beam read/write single-beam write	09/026,736	02/20/1998		6,314,071 (11/06/01)
ZRI-022 PCT	Foreign counterpart to '736 application	PCT/EP99/01074	02/19/1999	WO 99/42993 (08/26/99)	Maintenance Fee due 5/6/05; 5/6/09; 5/6/13; Expires 2/20/18.
ZRI-022 Japan		2000-532848	02/19/99	2002-504734 (2/12/02)	Int'l Phase Completed; national phase entered. Request for Exam 02/19/06

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DOC ID	SUBMISSION DATE	PCT/INT'L FILING DATE	PUBLICATION NO.	PATENT DATE	STATUS
ZRI-023 PCT	Foreign counterpart to '803 application	PCT/EP98/04268	09/22/1998		Int'l Phase Completed; National Phase entered in US
ZRI-023 US	Foreign counterpart to '803 application	09/529,500	04/13/2000	6,373,793 (4/16/02)	Maintenance fees due 10/16/05; 10/16/09; 10/16/13; expires 4/13/20
DOC ID	SUBMISSION DATE	SERIAL NO.	PUBLICATION NO.	PATENT DATE	STATUS
ZRI-025	Focus error detection using holographic element with astigmatism (multi- beam)	09/169,212	10/09/1998	6,229,771 (5/8/01)	Maintenance fees due 11/8/08; 11/8/12; expires 10/9/18
ZRI-025 PCT		PCT/EP99/07561	10/08/99	WO 00/22617 (04/20/2000)	International Phase completed; National Phase entered
ZRI-025	Australia	62017/99	10/08/99	755639 (4/3/03)	6 th annuity due 10/08/05; expires 10/8/19
ZRI-025	Japan	2000-576449	10/08/99	2002-5273853 (8/27/02)	Request for Examination due 10/08/06

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DOC ID	INVENTION	FILED	PCT/INTL	STATUS
ZRI-027	Buffering and re-ordering data blocks for sequential delivery to host computer (multi-beam)	09/159,998 09/24/1998		6,137,763 (10/24/00) Maintenance Fee Due 4/24/08; 4/24/12; exp. 9/24/18.
ZRI-027 PCT		PCT/EP99/06971 09/21/99		WO 00/17873 (03/30/00) International Phase completed; National Phase entered.
DOC ID	INVENTION	FILED	PCT/INTL	STATUS
ZRI-029	Using a swing-arm positioning mechanism in a multi-beam optical disk reader	09/373,683 08/13/99		6,449,225 (9/10/02) Maintenance Fees due 3/10/06; 3/10/10; 3/10/14; expires 8/13/19
ZRI-029 PCT		PCT/EP00/07703 08/08/00		WO 01/13367 (2/22/01) International Phase Completed; National Phase Entered
ZRI-029 Japan		2001-517382 08/08/00	2003-507831 (2/25/03)	Request for exam due 8/8/07
DOC ID	INVENTION	FILED	PCT/INTL	STATUS
ZRI-030 PCT		PCT/EP00/12826 12/15/00		Int'l Phase Completed; No National/Regional Applications

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DOC ID	SUBJECT	STATUS	PCT/INT'L	NATIONAL	REGIONAL	STATUS
ZRI-031 provisional	optical disk drive for writing multiple tracks of an optical disk.	60/260,458 01/08/01	10/042,653 01/08/02	20030012113-A1 (1/16/03)	Expired	Response to 1 st Office Action due 11/17/04 (deadline can be extended up to three more months until 2/17/05 with payment of extension fee for each month).
ZRI-031 PCT		PCT/IB02/01662 01/08/02		WO 02/065461 (8/22/02)	International Phase completed; No National/Regional Applications	
ZRI-032 US	multi-beam optical disks for reducing cross-talk and jitter	10/045,208 10/23/01		20030076760-A1 (4/24/03)		Response to 1 st Office Action due 1/5/05 (deadline can be extended up to three more months until 4/5/05 with payment of extension fee for each month). No Foreign filing

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